

CLAIMS

What is claimed is:

1. A crystalline atorvastatin free acid.
2. A crystalline Form A atorvastatin free acid or a hydrate thereof having a X-ray powder diffraction pattern containing the following 2 θ values measured using CuK α radiation: 8.9, 20.6, 22.5, or 25.9.
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3. A crystalline Form A atorvastatin free acid or a hydrate thereof having a X-ray powder diffraction pattern containing the following 2 θ values measured using CuK α radiation: 4.7, 6.0, 8.9, 9.1, 9.4, 13.2, 14.1, 17.8, 18.1, 18.9, 19.9, 20.2, 20.6, 21.8, 22.1, 22.5, 23.7, 25.9, and 26.7.
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4. A crystalline Form A atorvastatin free acid hydrate thereof having a X-ray powder diffraction pattern containing the following 2 θ values measured using CuK α radiation: 8.9, 20.6, 22.5, or 25.9.
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5. A crystalline Form A atorvastatin free acid hydrate thereof having a X-ray powder diffraction pattern containing the following 2 θ values measured using CuK α radiation: 4.7, 6.0, 8.9, 9.1, 9.4, 13.2, 14.1, 17.8, 18.1, 18.9, 19.9, 20.2, 20.6, 21.8, 22.1, 22.5, 23.7, 25.9, and 26.7.
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6. A crystalline Form A atorvastatin free acid or a hydrate thereof characterized by solid-state ^{13}C nuclear magnetic resonance having the following chemical shifts expressed in parts per million: 18.1, 18.8, 20.5, and 21.2.
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7. A crystalline Form A atorvastatin free acid or a hydrate thereof characterized by solid-state ^{13}C nuclear magnetic resonance having the following chemical shifts expressed in parts per million: 161.5, 163.6, 166.3, 167.1, 174.3, and 180.6.
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8. A crystalline Form A atorvastatin free acid or a hydrate thereof characterized by solid-state ^{13}C nuclear magnetic resonance having the following chemical shifts expressed in parts per million: 18.1, 18.8, 20.5, 21.2, 25.0, 25.5, 26.2, 26.8, 37.1, 38.9, 40.0, 40.6, 41.8, 42.9, 43.5, 65.3, 68.6, 69.1, 70.0, 71.3, 112.3, 113.7, 115.1, 116.4, 118.4, 119.3, 121.6, 123.3, 125.4, 128.0, 128.8 (shoulder), 130.0, 132.9, 134.1, 135.2, 137.9, 140.7, 141.8, 161.5, 163.6, 166.3, 167.1, 174.3, and 180.6.
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9. A crystalline Form A atorvastatin free acid or a hydrate thereof characterized by solid state ^{19}F nuclear magnetic resonance having the following chemical shift expressed in parts per million: -114.1, -112.6, -110.6, or -105.6.

10. A crystalline Form A atorvastatin free acid hydrate thereof characterized by solid state ^{19}F nuclear magnetic resonance having the following chemical shift expressed in parts per million: -114.1, -112.6, -110.6, or -105.6.
- 5 11. A crystalline Form B atorvastatin free acid or a hydrate thereof having a X-ray powder diffraction pattern containing the following 2θ values measured using CuK_α radiation: 8.6, 17.4, 21.1, or 21.5.
12. A crystalline Form B atorvastatin free acid or hydrate thereof having a X-ray powder diffraction pattern containing the following 2θ values measured using CuK_α radiation: 4.6, 5.9, 8.6, 9.3, 13.3, 14.1, 17.4, 17.7, 18.0, 18.8, 19.3, 19.8, 20.2, 21.1, 21.5, 21.9, and 23.6.
- 10 13. A crystalline Form B atorvastatin free acid having a X-ray powder diffraction pattern containing the following 2θ values measured using CuK_α radiation: 4.6, 5.9, 8.6, 9.3, 13.3, 14.1, 17.4, 17.7, 18.0, 18.8, 19.3, 19.8, 20.2, 21.1, 21.5, 21.9, and 23.6.
14. A pharmaceutical composition comprising crystalline atorvastatin free acid in admixture with at least one pharmaceutically acceptable excipient, diluent, or carrier.
- 15 15. A method of treating hyperlipidemia, hypercholesterolemia, osteoporosis, benign prostatic hyperplasia, and Alzheimer's Disease comprising administering to a host suffering therefrom a therapeutically effective amount of a compound according to Claim 1 in unit dosage form.